FEBRUARY 1967
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Soil Conservation

DEVOTED TO THE WISE USE OF LAND AND WATER RESOURCES

COST RETURN ANALYSIS IN RANCH PLANNING
Page 147

And other articles on Grassland Conservation

SOIL CONSERVATION SERVICE U. S. DEPARTMENT OF AGRICULTURE

Soil Conservation

Devoted to the wise use of land and water resources

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Increased Production and Conservation

Returns . . .

In the practical world of commercial agriculture, major decisions on resource use are of necessity based largely on the operator's expectation of economic return.

Range Conservationist H. L. "Hank" Leithead illustrates (p. 147) how SCS conservationists use a specialized method of "cost-return analysis" to help ranchers find the optimum level of range use for their individual holdings.

Old West: Range conservationists enjoy in their work a special contact with the aura of the Old West, as two reports from our man in Ft. Worth, Sellers Archer, show.

He and Photographer Hugo Bryan last summer met the Centennial Texas Longhorn Trail Drive and came back with scenes (p. 155) reflecting the impact of the cattle industry and conservation districts on the range country.

Then an interview with Cartoonist Ace Reid on his ranch (p. 149) reveals how he is making a conservation showplace of his own piece of beat-out range while building a reputation with knowing portrayals of hardbitten cowmen in equally hard country.

Reid's contribution of cartoons to decorate this issue of *Soil Conservation* is typical of his support of the cause of conservation.

Action: Direct from the field of action is Idaho Range Conservationist Roy Shipley's report (p. 151) on how ranchmen and conservationists reacted at once to heal burned rangeland in the Twin Falls area.

COVER: An SCS range conservationist gives instruction in plant identification to a ranch hand and the owner in the Cody Soil Conservation District of Wyoming. Story on p. 153.

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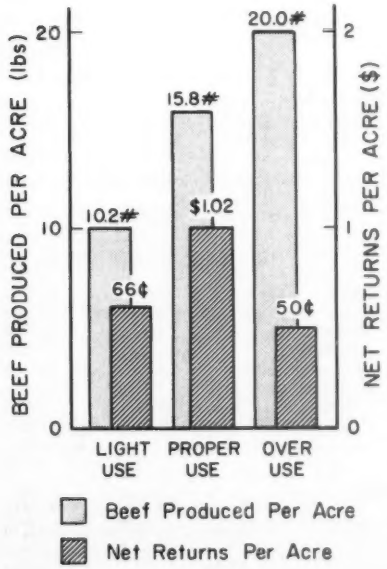
Use of Cost-Return Analysis in Planning Range Conservation

By Horace L. Leithead
Range Conservationist, Regional Technical Service Center, SCS, Ft. Worth, Tex.

Cost-return analyses of several ranches in the Edwards Plateau Land Resource Area of Texas showed that properly used ranges produce highest net returns per acre.

Three degrees of stocking were evaluated: Light, moderate (resulting in proper use of key forage species), and heavy (key species overused).

Overused ranges did produce most pounds of beef per acre but lowest net returns per acre.



Businessmen want to make money, and livestockmen are businessmen. That is why cost-return analysis appeals to stockmen.

This simplified method of cost analysis spotlights the strong and weak points of a livestock operation. It shows how, by applying sound grass and livestock management principles, the operator can cut costs and increase profits. It is a blueprint for a "grass to greenbacks" operation.

Range conservationists of the Soil Conservation Service are using cost-return analysis with individual farmers and ranchers to help them identify profitable changes in grassland management. Almost without exception, good conservation practices on range and pasture are profitable practices for the stockman.

The two essentials of a cost-return analysis are *good records* of the livestock enterprise and good *benchmark data* for the locality.

Two kinds of enterprise records are needed. The first is a record of land and water resources, a regular part of conservation plans prepared by soil conservation district cooperators with the assistance of SCS workers. It includes an inventory of soils and vegetation, indicating the present condition of range vegetation. A land use map shows also the land use pattern, fence locations, pasture acreages, watering facilities, and similar information.

The second kind of record needed is provided by the stockman himself. It includes an inventory of his livestock and current or average figures on production.

Reliable benchmark data are essential for a useful cost-return analysis. They serve as a standard of comparison between the individual farm or ranch and other operations having similar characteristics within a given land-resource area.

Benchmark data

Benchmark information compiled from nearby operations is most effective in motivating conservation changes in grass management. As stockmen in an area study the results of successful neighbors, they develop an "if he can do it, so can I" attitude.

The normal values for various costs and returns for the Southern Florida Flatwoods Land Resource Area shown in the table on the next page are typical of such area benchmark data.

The information was developed from records of well-managed ranches in the area and reflects the kinds of results good ranchers have been getting over the years.

These data apply where the yearlong feed and forage program relies on irrigated pangolagrass-ladino clover pastures for all the herd from March to October, and pastures are fertilized twice a year at medium levels.

In this type of operation, a system of rotation grazing is practiced, livestock being moved from one pasture to another after the key forage plants have been properly grazed. Then range or grazable woodlands carry the herd from October or November until pastures are ready to be grazed in the spring, and dry cows are fed from 1 to 1½ pounds of cottonseed cake for 90 to 100 days as

Benchmark Data

Southern Florida Flatwoods Area

Average costs and returns for cow-calf operation using a combination of irrigated pangolagrass-ladino clover pasture and grazable woodland pasture.

Basic livestock information:		
Calf crop weaned	percent	95
Average age at weaning	months	8-9
Average weight of calves sold	lbs.	550
Average weight of cows sold	lbs.	1,100
Annual fixed land costs:		
Taxes, per acre		$ 1.00
Control burning (rangeland), per acre		$ .50
Fences:		
Construction, per mile		$62.00
Maintenance, per mile		$15.00
Pastureland:		
Establishment, per acre		$ 7.95
Irrigation system, amortized in 20 years at 5 percent per acre		$ 4.70
Pasture mantenance, per acre		$13.60
Irrigation 4 times, per acre		$ 3.00
Livestock costs:		
Interest on investment in livestock at 5 percent:		
Cows valued at $150, per head		$ 7.50
Heifers valued at $100, per head		$ 5.00
Bulls valued at $500, per head		$25.00
Horses valued at $200, per head		$10.00
Veterinary service, per head		$ 2.00
Transportation and marketing, per head		$ 1.00
Pickup and other machinery, per A. U.		$ 4.50
Taxes, per A. U.		$ .50
Supplemental protein feed, per head		$ 4.50

a forage supplement.

Cost-return analysis shows this combination of land use and treatment yields a greater net return per acre than operations that depend entirely on improved pasture or on range for their yearlong forage supply.

Other profitable systems for the Southern Flatwoods Area can be worked out to fit the capabilities of the operator's resources. For example, bermudagrass pastures can be overseeded with oats or rye to furnish green forage during winter months. Or fescue can be used in combination with bermudagrass or bahiagrass to provide yearlong forage supply. Surplus forage can be mowed and baled in the summer and fed as hay during the winter. Coastal bermudagrass for summer and lovegrass for winter grazing are a good combination on sandy soils in east Texas.

Where more than one of these alternatives are available, a cost-return analysis can be used to help select the combination that will yield the greatest net returns for a particular farm or ranch.

For example . . .

The case of Dewey Adamson and Son, shown in the following table illustrates this point.

The Adamsons have a timber and beef cattle operation near Glenville, Ga. Although the woods are suitable for grazing, they were not being grazed. The cattle were run on highly fertilized pastures for 7 to 8 months and fed hay the rest of the year.

A cost-return analysis was made of their present system and compared to a proposed system of grazing the woodlands in winter and feeding a protein supplement instead of so much hay.

Changes were also considered in the grazing system for the pasture. By constructing a half mile of fence, a rotation instead of con-

Cost-Return Analysis, Dewey Adamson and Son Ranch

Actual, 1965		Proposed plan	
	Gross Income		
	Dollars		Dollars
117 Calves, avg. wt. 400# at 0.20	9,360	142 Calves, avg. wt. 425# at 0.20	12,070
12 Cows, avg. wt. 900# at 0.14	1,512	14 Cows, avg. wt. 900# at 0.14	1,764
1 Bull	350	1 Bull	350
3 Heifers, avg. wt. 800# at 0.17	408	6 Heifers, avg. wt. 800# at 0.17	816
Total income	11,630		15,000
Expenses on Land and Improvements			
Fence maintenance, 20 miles	210	Fence maintenance, 20 miles	210
Fence construction	0	Fence construction 0.5 mile amortized in 5 yr.	40
Water development	0	Water development	125
Taxes	100	Taxes	100
Maintenance of fire lanes, 30 miles at $13.25	398	Maintenance of fire lanes, 30 miles at $15	450
Pasture maintenance:		Pasture maintenance:	
Fertilizer, 250 acres at $26 per acre	6,500	Fertilizer, 250 acres at $13 per acre	3,250
Mowing, 250 acres at $5 per acre	1,250	Mowing, 250 acres at 2.50 per acre	625
Subtotal	8,458	Subtotal	4,800
Annual Livestock Costs			
Interest on livestock at 5 percent:		Interest on livestock at 5 percent:	
150 Cows valued at $125 per head	937	175 Cows valued at $125 per head	1,093
30 Replacement heifers valued at $100 per head	150	34 Replacement heifers valued at $100 per head	170
6 Bulls valued at $300 per head	90	7 Bulls valued at $300 per head	105
4 Horses valued at $200 per head	40	4 Horses valued at $200 per head	40
Labor, 1 man for 4 mos.	560	Labor, 1 man for 4 mos.	560
Transportation and marketing	532	Transportation and marketing	652
Pickup	500	Pickup	500
Veterinary	190	Veterinary	220
Salt and mineral	18	Salt and mineral	25
Supplemental feed:		Supplemental feed:	
Protein, 8 tons at $70	560	Protein, 15 tons at $70	1,050
Hay, 300 tons at $12	3,600	Hay, 125 tons at $12	1,500
Subtotal	7,177	Subtotal	5,915
Summary			
Estimated expenses	15,635	Estimated expenses	10,715
Estimated income	11,630	Estimated income	15,000
Loss	4,005	Gain	4,285

tinuous grazing system could be practiced. Calves could easily gain 25 more pounds apiece if the calving date were moved back 2 months so they would have longer grazing on the improved pastures.

Fertilizing and mowing could be reduced by half, thus cutting the pasture maintenance expenses in half also.

The cost-return analysis, using the best benchmark data available and average prices for the livestock sold, indicated that the proposed program might be expected to return the Adamsons a net profit of about $4,200 instead of the net loss of $4,000 from their current operations.

Range use vs. overuse

Many stockmen have been reluctant to plan proper use of their grazing land, not because they questioned its worth as a conservation practice but because they thought it would reduce their profit.

It was generally assumed that net returns were earned in proportion to the number of animals per section, or pounds of beef produced per acre. Many operators overstocked because they thought this would make them more money. In reality, they can make more money with fewer cattle on properly used pastures.

Cost-return analyses of ranches throughout the country consistently show that although overused ranges may produce more pounds of beef per acre they usually give lower net returns per acre than properly used ranges.

Cost-return analysis is used primarily to help stockmen plan proper use of their grazing resources and to provide an economical yearlong feed and forage supply. Many stockmen are also finding such analysis an excellent way to measure the yearly progress of their conservation plans. They see that conservation pays in both bigger profits and better range condition. ♦

On the ole Draggin' S . . .

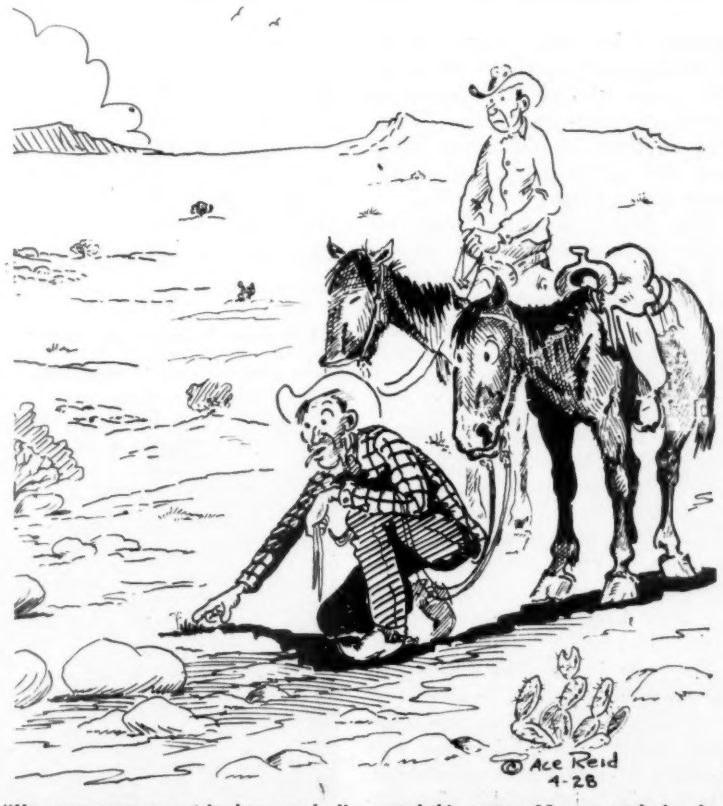
Western Cartoonist Makes Showcase of His Own Ranch

ALTHOUGH Ace Reid, western cartoonist, pokes fun at the hardships of ranching, he is proving on his own place that a good ranch does not consist of barren, rocky, cactus- and brush-infested rangeland on which gaunt cows vainly search for a bite to eat, as he pictures them in his drawings.

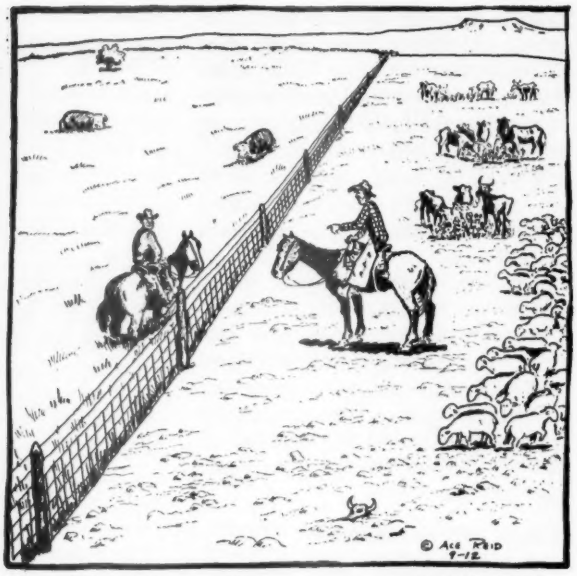
Visit his 350-acre ranch in the beautiful Hill Country of Texas near Kerrville, and the creator of "Cowpokes" cartoons will talk freely about his work—of the cartoons used in more than 300 newspapers and magazines over the Nation, the six "Cowpokes" books which have sold more than a million copies, and the "Cowpokes" calendars moving at 500,000 a year.

But mention the luxuriant grass, the deer, and the wild turkeys you saw along the ranch road as you approached his modern home, and he'll have you in his open-top Scout showing you more of them.

"My neighbors thought that I was a dang fool for buying this



"My grass management is shore good. I've rested this pasture 12 years and already grass is acomin' back!"



"Neighbor, I shore admire yore fence buildin'. It's so tight the grass can't even crawl over on my side!"

A fenceline contrast where Ace Reid's ranch joined a neighbor gave him the idea for one of his most popular cartoons.

rockpile," he says. "They told me it wouldn't grow anything at all. The people who owned it had a big bunch of sheep and goats. There was no grass—nothing but brush and that eaten up as high as the goats could reach."

The Scout bounces along the rocky trails as he tells the story.

"You couldn't even walk where we are driving. There was nothing but cedar—like that." He points to an area of brush that hasn't been cleared. "Under it there isn't a blade of grass and hasn't been for years. I was worried, too, so I asked Sam to come over."

Sam Murrah, former work unit conservationist with SCS at Kerrville, helped him develop a conservation plan on his "Draggin' S" Ranch and sign an agreement with the Kerr Soil and Water Conservation District.

He stops in an area where luxuriant grass grows knee high.

"You can see what we have done, but you can't imagine how desolate it was when we started. First, I planted two fields of Coastal bermudagrass for my horses, but I didn't put any other livestock on the ranch. Every night the fields are full of deer.

"Then we started cutting the cedar with power saws and letting it lie where it fell," he explains. "We killed the brush here just 2 years ago. Look at the amazing way the grass has come back."

He takes you up a steep slope to the flat top of a hill and drives through waist-high grass. "All of this Hill Country would be just like this if the ranchers would kill the brush and take the cattle off long enough for the grass to come back," he says.

"Cedar doesn't belong here any-

The Draggin' S Ranch was "nothing but a rockpile covered with nothing but brush" when Ace Reid bought it. SCS Conservationist Sam Murrah (left), who helped Reid make his conservation plan, is recognizable as the soil conservationist in some of his cartoons.

way. About the time of the Civil War an old man rode through here and described this as a rolling plain with scattered liveoak and no cedar at all except along the creeks. Cedar spread over hills about 1890, I think, after cattle had all but destroyed the grass."

The route he takes leads to a property-line fence.

"The fellow who owns that land is one of the ones who gave me a bad time about buying this pile of rock without any grass. Now look who has the grass."

He points with pardonable pride.

"Sam and I looked at this once, and he said 'your fence is so tight the grass can't grow through'—and that gave me an idea for a cartoon."

He stops the car on a slope as he continues his story.

"This whole rockpile will look just like that when I get the brush all cleared out. That's the thing that amazes me—the way the grass comes back when it gets half a chance. This whole country could look like that. It would take some work and good management, but it would pay off big. This land has had 100 years of abuse, and grass won't come back without a little help. It can't be done in a year, either, but we can sure start it any year we make up our minds to rebuild this country."

He makes a final stop on the ridge above the house.

"I'm dropping the brush all around the edge of this little watershed that drains through my yard. It is fantastic how the grass grows on these slopes. It cuts down the runoff, and it makes the springs stronger. One little spring back of my house there supplies us with water for the house, the swimming pool, and for watering the lawn."

On the tour you've seen a half-dozen good springs which keep a good flow through Steel Creek and supply water for several small ponds. You've seen a cabin under towering pecan trees where Reid likes to work as he watches the big bucks stare at him, turkey gobblers strutting in the tall grass, his two big Texas Longhorns, many kinds of wildlife, and occasionally the big-horned Corsican rams that he introduced to the ranch.

You've seen most of this wildlife as you rode along, and you've had a convincing lesson in conservation. You are sure that Reid has discovered the way to restore the beautiful Hill Country of Texas—for profitable cattle raising and what may be even more important, for an outstanding playground that will offer everything from scenic beauty to one of the best hunting grounds in the Nation.

You've seen his conservation showcase and his exhibits of soil, water, grass, and wildlife conservation. And you know why he is so effective as he travels 25,000 miles a year to talk to dozens of cattlemen and other groups telling them his vivid version of the soil and water conservation story.—SELLERS G. ARCHER, *Information Specialist*, SCS, Fort Worth, Tex. ♦

After the long, hot summer . . .

Idaho Ranchers Rebuilding After Major Range Fire

By Roy L. Shipley
State Range Conservationist, SCS, Boise, Idaho

SOIL conservation district cooperators and Government agencies in the Twin Falls, Idaho, area moved promptly to forestall erosion on about 75,000 acres of private and public rangeland that burned in a devasting fire there last August.

The ground had hardly cooled from the 3-day burn before a steering committee of local ranchers and representatives of Government agencies was formed to plan and carry out emergency land treatment.

Eighteen rancher cooperators of the Twin Falls Soil Conservation District began at once an intensive program of contour ripping, seeding, fencing, and providing emergency land treatment for the 37,000 acres of privately owned land laid bare by the fire.

On public lands, the Forest Service has seeded 17,300 acres and the Bureau of Land Management upwards of 2,000 acres.

The Agricultural Stabilization and Conservation Service provided $80,000 for cost-sharing on seeding, fencing, and water development, and SCS alloted $79,600 for emergency land treatment. The Idaho State Fish and Game Department provided Ladok alfalfa seed for 1,000 acres.

The lightning-caused fire south of Twin Falls started around 3

The pencil points to grass roots exposed by erosion following the fire. (Photo courtesy *Salt Lake Tribune.*)

p.m. August 25 and burned for 3 days on private, State, and Federal land. An unusually dry summer had made tinder of the vegetation, and strong winds fanned the flames. Hundreds of ground fire fighters, aided by chemicals dropped from planes, battled the natural disaster.

Burn severe

The burn was so severe it virtually vaporized trees, large sagebrush, and fences, leaving little but miles of blackened and drifting soil.

In addition to range vegetation, 550 sheep, 600 cattle, 150 miles of fence, several cabins, some farm equipment, and an undetermined number of deer and upland game birds were destroyed. The livestock loss is estimated at $130,000, fence replacement cost at $60,000, and other private property loss at $150,000. Losses to ranchers from forage alone will in the next 3 years amount to more than half a million dollars.

There was no loss of human life.

Contour ripping and seeding were begun immediately, and some 36 drills and 17 D-8 Caterpillar tractors and rippers were kept busy through the fall months, so the work could be finished before winter set in.

Twenty-seven thousand acres of the private rangeland was ripped on the contour to hold water and cut the high erosion potential. Contour trenches 30 to 40 feet apart and 18 to 24 inches deep will help to stabilize the soil and keep spring runoff water from carrying away the new seedings.

Several different species of grass were planted, to match the differing soil conditions and amounts of rainfall. The principal ones are Greenar intermediate wheatgrass, pubescent wheatgrass, and crested wheatgrass.

Cooperation does the job

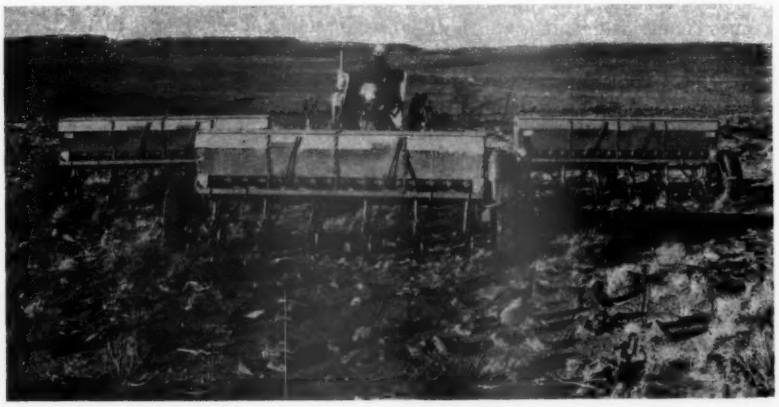
Ranchers in the burn area have expressed appreciation for the complete cooperation of Government agencies in providing technical assistance and funds for the quick rehabilitiation.

Dennis Froeming, SCS range conservationist, and Clarence Hedrick, SCS work unit conservationist, point out that much of the credit goes to the landowners themselves.

"They asked us what could be done and then organized their own committees," Froeming said. "Not one of them suggested giving up."

Complete soil and water conservation plans have been made by each individual rancher and for each range unit.

The conservation work will reduce potential flood damage to both rangelands and to roads and bridges. Ranchers, conservationists, and the Twin Falls Conservation District are working hard to overcome the financial and land problems in the wake of one of the most disastrous range fires in Idaho history. ♦



SCS Range Conservationist Dennis Froeming (above) looks over private rangeland where ripping is completed. Contours will curb runoff and reduce further erosion damage. Below is one of 36 grass drills used by conservation district cooperators to seed burned range. (Photo courtesy *Salt Lake Tribune.*)

Ranch Chores and Nature Study Help Entertain Paying Guests

By Jimmy R. Bell
Range Conservationist, SCS, Worland, Wyo.

SOME of Bob Meyers' paying guests on his cattle ranch northwest of Cody, Wyo., won't forget the chores they sandwiched in with fishing and relaxation.

Youngsters from Urbanville, USA, now can tell their city chums about milking cows and herding cattle—if need be, show 'em.

The Meyers have much to offer vacationing guests. Towering peaks surround the ranch located high in the South Fork Valley along the headwaters of the Shoshone River.

To the northwest, moose, elk, deer, mountain sheep, and other native animals roam thousands of square miles of national forest. To the east is the famous old TE Ranch formerly owned by Buffalo Bill Cody.

The crystal clear waters of Ishawooa Creek flowing out of the mountains provide guests with excellent trout fishing. In summer wild flowers grow in profusion.

For 5 years the Meyers have successfully operated a guest ranch during summer and fall. They built and modernized several cabins, and they maintain an atmosphere of real western hospitality.

In 1962, the Meyers joined the Cody Soil and Water Conservation District and, with the help of the Soil Conservation Service, developed a conservation plan that included such practices as range management, proper range uses, and stream-channel improvement.

During the planning stage soil conservationists provided some unusual services and learned much about guest ranching that others planning such ventures might want to know.

Most important, according to the Meyers, a guest ranch operator must like people and have the ability to make them feel at home.

Next, the guest must have something interesting to do, and this is not always easy. The Meyers found that simple ranch chores often give real entertainment for guests. Children, especially, enjoy milking cows or helping move cattle.

A saddle and harness shop, such as the Meyers have, and the rustic old wagons and carts common around most ranches fascinate many guests. Some favor activities such as fishing or horseback riding; others like to relax and wander about the ranch. Most guests want to know about the things that live and grow in the area.

SCS conservationists can offer many types of assistance that help guest ranch operators learn about nature and pass along the information to urban people.

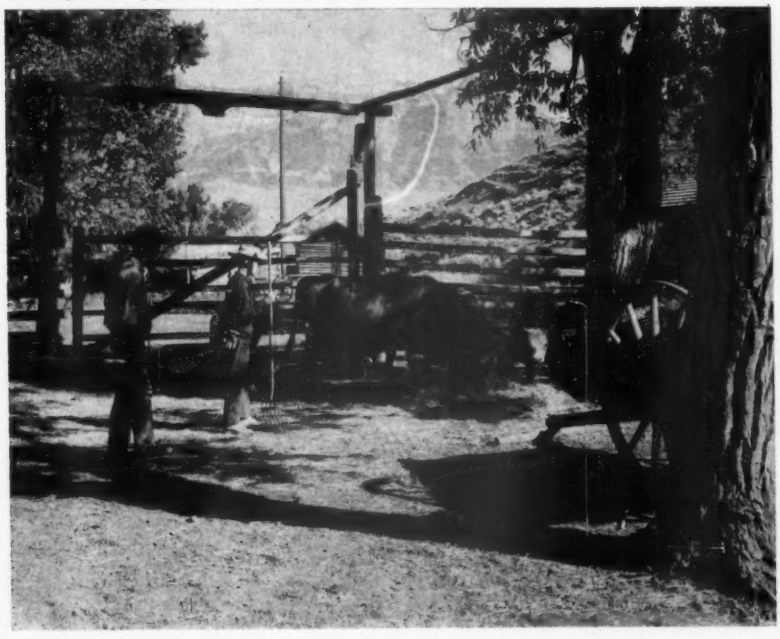
They recommended to the Meyers books for identifying local wild flowers and showed them how to collect and mount plant specimens and how to photograph plants.

The ecology of various plants provides fascinating information, often of significance to conservation. The Meyers were surprised to learn, for example, that poisonous plants like the larkspur and death camas grew on the hillside near the ranch headquarters because concentrated grazing there had weakened the original grass cover.

The Meyers enjoy their guest ranch operation. Guests are not considered customers but new friends, and the Meyers' correspondence grows each year as old guests want to know of the happenings at the ranch. One little girl writes regularly to the horses she rode during her stay.

With the ever-increasing demand for recreation from America's exploding population, guest ranch enterprises will expand, and more conservation information will be needed. ♦

Ranch guests enjoy chores like feeding cattle and cleaning stables.



New Forage Supply on Red Mountain Ranch

THERE'S a new and better look to the Red Mountain Ranch in Eagle County, Colo., since Owner Carl Lloyd and Manager Jim Ross have applied their range conservation plan.

About 5,000 acres of the ranch is high-producing open sagebrush and aspen range. When Lloyd bought the land, two-thirds of the plant growth was low-quality species, unusable as forage for cattle, and there was a shortage of livestock water and adequate fences.

Lloyd and Ross became cooperators with the Eagle County Soil Conservation District shortly after it began. They developed a plan, updated last year, for sagebrush and rabbitbrush control, deferred grazing units, new fencing, planting alfalfa and grass for hay, and improvement of wildlife habitat. Nearly 2,000 acres of range was aerially sprayed to reduce sagebrush without increasing rabbitbrush. The mountain range is being fenced into four grazing units, each of which can be deferred during the critical summer growing season every other year.

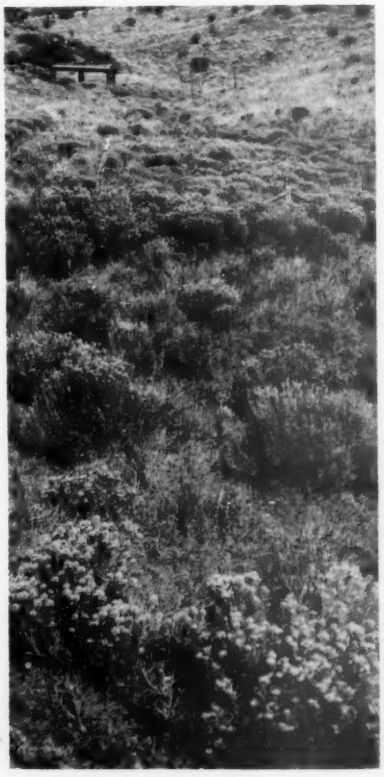
Water development, a particularly difficult problem, is also being worked on. With more cover on the soil, there is now little or no surface runoff.

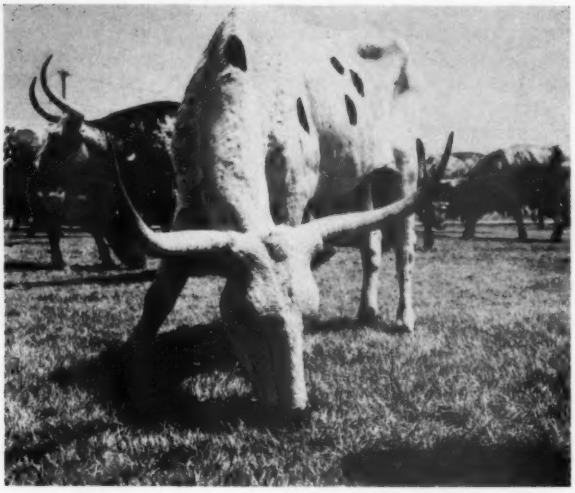
The range improvements have showed up in better returns at marketing time. Says Jim Ross, "The calves were heavier than ever last fall."

Jim adds, "The range is several times better pasture than when we came 16 years ago."

Like many other ranchers, Carl Lloyd and Jim Ross have found that a good conservation plan stressing proper use of grass with brush control is a highly desirable substitute for trying to buy more land at today's high prices.—DONALD R. ROBERTSON, *Range Conservationist, SCS, Glenwood Springs, Colo.* ♦

Carl Lloyd, owner (left), and Jim Ross, manager, examine their conservation plan map on Lloyd's Red Mountain Ranch. Rabbitbrush dominates mountain valley range site in fair condition (left, below). Mountain loam range (right) has improved to good condition after being sprayed with herbicide to kill the sagebrush. The pasture to left of fence has been deferred during the growing season.





Longhorns Retrace Grassland Trail

LONG, rangy, tough, cantankerous Texas Longhorns were free for the taking and taming when Texans returned from the war in 1866 and found their State prostrate and impoverished. Except to feed the family, however, the cattle were worthless.

But far to the north, from railheads in Kansas, the Longhorn could be shipped to a meat-hungry East. An animal worth no more than a dollar or two at home would bring $10, or $20, or even $35, at the other end of the long trail beyond the Indian Territory.

In 24 years 10 million Texas Longhorns and a million horses were driven up the several trails from Texas to Kansas, grazing on the prairie grasses along the way. Texas was enriched by a quarter of a billion dollars.

So began the saga of the cowboy, the romance of the open range, a folklore that is uniquely American.

Last summer three States celebrated the 100th anniversary of the beginning of the era. In 7 days, June 25 to July 2, 93 head of fine Longhorns retraced the long grassland trail from San Antonio to Dodge City. Between short ceremonial drives at historic spots along the way, the cattle were transported in trucks.

The Texas Longhorn Breeders Association of America organized the affair. Several descendants of the original trail drivers, some of them now prominent stockmen and conservationists, joined with other ranchmen and officials of Texas, Oklahoma, and Kansas in commemorating pioneer range history.

Along the way, the modern trail drivers had opportunity to observe the changes a century of farming and ranching had worked upon the landscape.

Not only have towns and highways, farm buildings and fields, grown on the scene, but range vegetation itself has undergone drastic changes.

Ceremonial Points
on the Texas Longhorn
Centennial Trail Drive

June 27. Trail drive past LBJ Ranch; camp on Pedernales River.
June 28. Drive and camp near Old Abilene Town (Tex.)
June 29 Unload at Middlebrook feeding pens near Vernon; drive to Doan's Crossing and camp.
June 30. Drive across Red River at Doan's Crossing led by Lt. Gov. Preston Smith of Texas; greeting on north bank by Lt. Gov. Leo Winters of Oklahoma. Trail drive through Altus.
July 1. Camp on banks of Arkansas River near Dodge City, Kans.
July 2. Trail drive into Dodge City; auction of Longhorns. Saturday night in Dodge City.

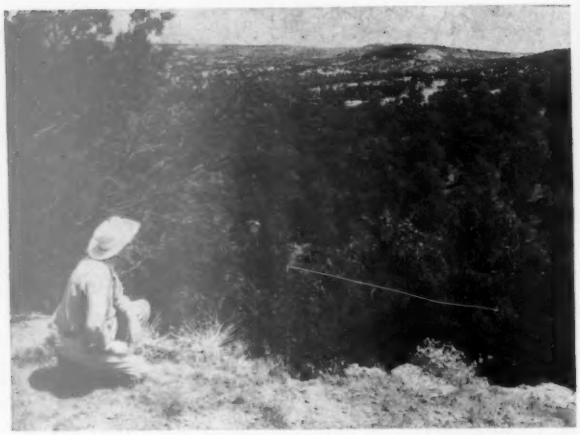
The range cattle industry grew and flourished on the original native grasses that covered the hills and plains, often saddle-high.

By 1900 the swelling herds of cattle in the Southern Plains overburdened the grass. Poor management and bad weather eliminated many operators. Homesteaders' fields and fences fragmented the open range and enclosed watering places. It was the end of cattle trailing and the end of a pioneer era.

On fenced ranches and farms, grassland deteriorated further under too-heavy trampling and grazing. Mesquite, cedar (juniper), sand sagebrush, and other woody invaders came in as the grass went out. By the early 1960's four-fifths of Texas' once luxuriant grasslands were infested with woody plants.

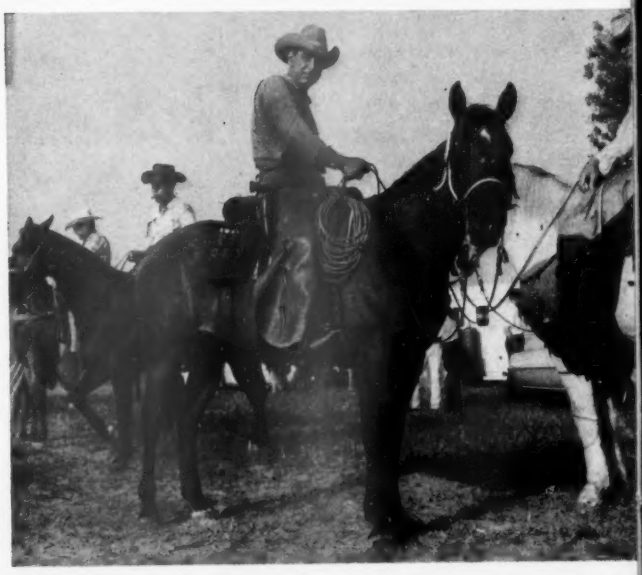
The riders on the centennial trail drive, however, were of a generation of ranch owners that had seen the damage to the land and are helping to repair it.

Grassland restoration and management have been a growing part of the soil conservation movement



The first leg of the centennial Longhorn drive was through the Texas Hill Country (above) past the LBJ Ranch. The original trail drivers found these hills covered with grass stirrup-high and so free of brush that game and livestock could be seen for miles.

When the 20th century Longhorns were assembled at Doan's Crossing (above center) they were almost hidden from the horsemen by tamarisk. In pioneer days the sandy banks of Red River were covered with tall grasses. Continued concentration of livestock at the historic trail crossing set the stage for invasion of the brush.



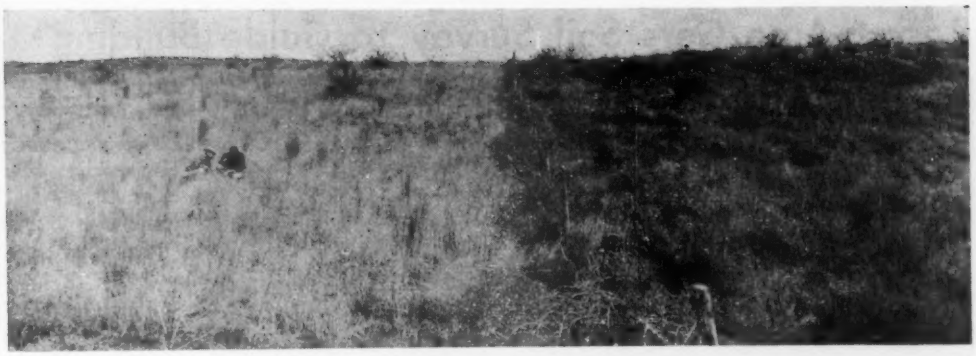
Raymond K. "Kenney" House (center at right) successor to fabled Wyatt Earp, Bat Masterson, and Doc Holliday as marshal of Dodge City, met Texas Rangers (left to right) Dudley White, Jimmie DeLesdinier, and Ed Gooding as the drive prepared to break camp at Doan's Crossing.

After ceremonies at which Oklahoma's Lieutenant-Governor Leo Winters met his Texas counterpart, Preston Smith, at the State line, the horsemen drove the herd down the bank and across the Red River sands where an estimated 6 million cattle headed north across Oklahoma in the old trail-drive days.

that gained momentum following the Dust Bowl days of the 1930's.

Soil conservation districts now include all of Texas (except the King Ranch), Oklahoma, and Kansas. Cooperators in these three States have established proper range use on 60 million acres of rangeland, have removed or controlled invading brush from 20 million acres, and have seeded 5 million acres of range.

These are only examples of range conservation practices that are restoring the grass on today's farms and ranches. The entire route of the centennial drive is within conservation districts, and participants at many places saw grass even better than the pioneers knew. ♦



Modern ranch owners in soil conservation districts are reclaiming deteriorated range from brush invasion and restoring the orginal grasses with good management. Sand sagebrush has been shredded twice in the pasture on the left (upper right).

The Great Plains Conservation Program has helped landowners reseed cultivated land to permanent grass, improve rangeland, and stabilize the economy of the arid Southern Plains. At right, Ranchman Robert Orr (in white cap) shows the Wilbarger County GPCP Committee the indiangrass seeded on cotton land converted to livestock farming.

Herbicides sprayed from airplanes (below) have been used successfully and safely to kill sand sagebrush and other invading shrubs. A 2-year-old grass planting (right) of switchgrass, indiangrass, and little bluestem recreates a scene like the original sandyland range near Doan's Crossing.

Resort Area Gets Soil Survey to Guide Building

Jackson planning board members see the internal features of one of the town's important soils in a roadcut exposure. Left to right (above) are Frank Vieira and Sidney Pilgrim, SCS soil scientists, and board members Peggy Frost, Richard May, and Jacky Jones. Gully erosion (below) is evidence of runoff problems on the Marlow soil in a Jackson subdivision. The snowy peak in the background is Mount Washington.

CROWDED by a booming summer resort development, a small mountainous town in New Hampshire put up funds to accelerate its soil survey and became the first in the State to be equipped with this necessary guide for orderly expansion.

Jackson has a permanent population of less than 400 people, but its popularity as a summer resort gives it a seasonal increase of 5 to 6 times that number. In addition, winter ski visitors to the surrounding White Mountains are increasing, and a year-round housing boom has begun.

Having seen the results of unplanned expansion elsewhere, Jackson officials felt they wanted all the information possible about their land, so they arranged for the soil survey. They realize that land use decisions made in the next few years will have long-lasting consequences.

The town put up $800 to help pay the expense of the survey by the Soil Conservation Service working through the Carroll County Soil Conservation District. The mapping was completed only this year, but already it has proved useful. Interested home builders have used soils information in buying their land. And a vacation home developer has planned his tract of land after close study of the soil map. Officials feel that the survey is a valuable tool in planning for healthy, profitable growth.—SIDNEY A. L. PILGRIM, *State Soil Scientist, SCS, Durham, N.H.* ♦

Multiple-Purpose Projects

Experience in hundreds of localities demonstrates that multiple-purpose small watershed projects are an effective means for rural and urban communities to deal with land use and water problems.

Arizona Ranchers Praise Results From Use of Irrigated Pasture

By Leon Kimberlin
Conservation Agronomist, SCS, Phoenix, Ariz.

"IRRIGATED PASTURE is one of the best crops we can grow!" say John Olsen and Louis Fornara, partners in the JCJ Ranch in Big Chino Valley near Prescott, Ariz.

Both Olsen, an executive committee member of the National Association of Soil and Water Conservation Districts, and Fornara, can speak with the authority of practical experience. Their pastures have been outstanding in producing forage for beef cows and calves, beef yearlings, and replacement dairy heifers.

The JCJ Ranch has about 600 acres of irrigated farmland; the balance, approximately 1,000 acres, is native rangeland. The ranch is about 5,000 feet above sea level and has an average annual rainfall of 12 inches. Irrigation water is supplied by wells. All crops grown on the ranch are fed to livestock.

The JCJ pasture program began in 1958, when the Soil Conservation Service recommended tall wheatgrass and sweetclover for a 30-acre field which had been unproductive because of an alkali soil condition. The new seeding grew exceptionally well, and the grazing it furnished the following season created interest in more pasture planting. By 1960 the partners had established tall wheatgrass in an additional 70 acres and where planning continued expansion of pasture acreage.

Irrigation improvements

The basic conservation plan for the ranch was revised. Some of the land which had been used for corn silage, small grain, and hay was converted to irrigated pastures. Improvements in land leveling, concrete ditch lining, and irrigation structures were scheduled to keep pace with the pasture planting program. By 1963, an additional 200 acres had been seeded to Goar's fescue and narrowleaf birdsfoot trefoil.

In Big Chino Valley, the irrigated pasture grazing season extends from May through October. Pastures on the ranch are managed in a rotation grazing system. Each pasture is grazed 2 to 5 days, with 20 to 30 animal-units an acre, and then given about 28 days for regrowth. Cattle are moved into a new pasture when the grass has been grazed to a height of about 3 inches for Goar's fescue, and 8 inches for tall wheatgrass.

As soon as the cattle are moved out of a field, it is fertilized with nitrogen and irrigated to speed regrowth of the forage. A second irrigation is usually required before the next grazing. A minimum of 120 pounds of nitrogen and 40 pounds of P_2O_5 an acre is applied each year.

Olsen believes 10 or more fields are needed to get the best results

John Olsen of the JCJ Ranch and Walt Jefferson, SCS conservationist, check Goar's fescue and birdsfoot trefoil after a week of regrowth.

Olsen and son Mike use siphons to irrigate pasture immediately following grazing and again during the regrowth period.

Louis Fornara, JCJ partner, checks dairy replacement heifers at the feed troughs. Hay and corn silage are grown for winter feed.

from rotation grazing.

"Concentrating the cattle prevents uneven grazing," said Olsen.

"It practically eliminates the need for clipping pastures, and manure is evenly distributed," he added.

"Fences have to be well maintained," said Fornara, "but moving the cattle from one field to the next is not much of a problem. They soon learn to go to the next field when the gate is opened."

Pasture records are kept by the JCJ partners. Yields of up to 260 animal-unit-days an acre for a grazing season have been recorded for the tall wheatgrass. Goar's fescue drilled in alternate rows with birdsfoot trefoil has yielded up to 800 animal-unit-days. Steer gains up to 2 pounds a day have been checked.

Needless to say, the partners favor the Goar's fescue-birdsfoot trefoil mixture. However, they are quick to emphasize that tall wheatgrass has paid its way and has done a good job of soil conditioning.

Olsen and Fornara are convinced the success of irrigated pastures hinges on several important factors: Careful attention to the correct methods of seeding and establishing adapted grass and legume species; good fertility management; adequate and timely irrigation; and proper use of the forage through adequate stocking rates in a rotation grazing system. ♦

Idaho Farm Becomes Conservation Showcase

A complete face-lifting job on the 160-acre Fiala farm northeast of Jerome, Idaho, serves as an inspiration to neighboring farmers. The farm is operated by Roger Fiala and his father and includes a good cropping system, water management and control, residue use, and fertility management.

When the farm was purchased in 1930, there were 22 individual fields in different shapes and sizes and 6 headgates and delivery ditches to furnish irrigation water. Shortly after the North Side Soil Conservation District was organized in 1946, the Fialas requested assistance in developing a complete farm plan.

Through a land-leveling program, the entire area was worked into 10 rectangular fields with uniform lengths for irrigation water management. Underground pipelines requiring only 1 headgate replaced seepy earth ditches. Small valves on the pipelines bring water to the surface for each 10 corrugations.

Water is applied so there is no soil erosion and a minimum of waste. The pipeline system is arranged so waste water from the neighbors can be used on one-third of the farm to supplement the decreed water rights.

The main crops grown are alfalfa, potatoes, and small grain. The rotation of alfalfa for 2 years, potatoes for 1 year, and small grain seeded with alfalfa is followed without a break.

Potatoes, the main cash crop, are cared for constantly through the growing season. A soil thermometer checks for time and amounts of irrigation water needed, and only the amount needed to refill the soil profile is applied. This is controlled by the pipeline and valve system.

As an additional bonus, there are no noxious weeds on the farm, since Mr. Fiala can cultivate or spray up to the field and property boundaries with ease.—GEORGE JAMES, *Work Unit Conservationist, SCS, Jerome, Idaho.* ♦

Rural Electrification Loans

Twenty-nine loans approved by Rural Electrification Administration will enable REA borrowers in 20 States to furnish initial electric service to more than 14,000 rural consumers.

Loan funds totaling $17,582,000 will finance construction of 1,746 miles of distribution line, 101 miles of transmission line and extensive system improvements including 17 substations and additional headquarters facilities in Alabama, Arkansas, Colorado, Idaho, Illinois, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, New York, North Carolina, Oklahoma, Oregon, South Carolina, Texas, Vermont, and Virginia. ♦

Conservation Farming With District-Agency Help

IN 3 YEARS, Joe Montgomery, a Negro cooperator of the Escambia County Soil Conservation District, Brewton, Ala., has built a profitable farming operation by using agency help available to him and basing his program on sound conservation practices.

With Farmers Home Administration ownership loans he bought 78 acres of rundown unproductive land in 1962 and 53 acres in 1963, and immediately applied for assistance from the district. Besides this acreage, he farms 180 acres of rented land. He began at once to establish his conservation plan.

Mr. Montgomery built more than 7,000 feet of parallel terraces, seeded 0.7 acre of waterways, planted 2,000 feet of field borders, and dug 600 feet of field ditches with technical help from SCS and ACP cost-sharing.

Joe Montgomery (left) discusses his year's plans with Escambia County Conservation Technician H. W. Hardee and Work Unit Conservationist E. L. Norton.

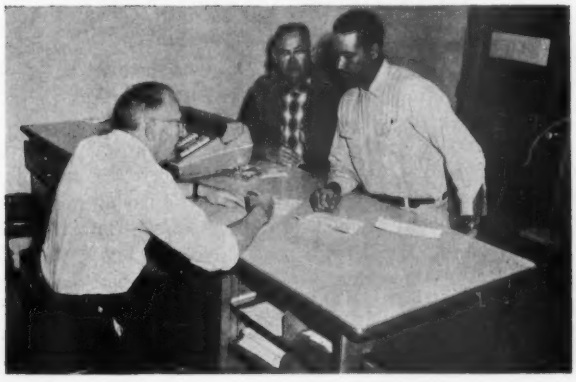
He points all his farming operations toward producing better grazing and feed for his 100-cow-plus, high quality beef herd. Planting 41 acres of Pensacola bahiagrass and 40 acres of millet for summer grazing, 200 acres of oats and crimson clover for winter grazing, and supplementing winter pasture with dry rations of oat-hay and corn and cottonseed meal are some of his operations. In the spring he cuts all the hay he needs for forage and is still able to turn under a good growth for green manure.

Joe Montgomery fertilizes according to soil test recommendations, and he believes it takes both good conservation and fertilization to make a farm pay. Last year he produced 58 tons of soybeans from a 40-acre field, and about 10 acres of cotton and 23 acres of corn also produced well.

Montgomery's wife is a school teacher and helps on the farm. With her and his father's help, he built several miles of new fences and a concrete-floored metal feed storage barn.

A. R. Fouts, FHA county supervisor, and H. W. Hardee, Escambia County conservation technician, say that Joe Montgomery has done as much, with the resources available to him, as any farmer in the county. He will continue his conservation work this year by building another 12,000 to 15,000 feet of parallel terraces. ♦

Left—While FHA Supervisor A. R. Fouts (center) looks on, ASCS Office Manager C. W. Hillman (left) explains ACP program to Joe Montgomery. Right—Joe Montgomery feeds his fat steers.



New Jersey Nature Center Is Legacy for Neighbors

SUSSEX WOODLANDS, in the Northeast Jersey Soil Conservation District, N. J., is being developed by its owner, Fred Ferber, as a legacy for the people of the greater New York area.

This legacy is not money or tangible assets but a place to relax, be close to nature, enjoy the cool shadows of a woodland, take pictures, or just watch the wildlife that abounds. He is creating a nature center.

Mr. Ferber came to this country from Austria in 1931 and established himself in the manufacturing world as a toolworker. He, later, pioneered the development of the modern ballpoint pen.

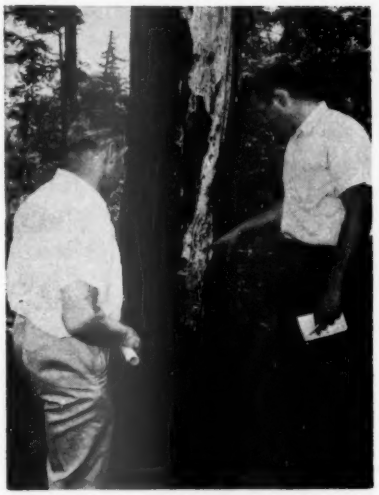
He had become interested in wildlife conservation in Austria, where he and his wife were members of a nature conservancy. In 1959, he acquired a 3,300-acre tract located in Passaic and Sussex counties near the communities of Vernon and West Milford, N. J.

Ferber obtained assistance from the Audubon Society in the early stages of planning for the nature center. Then he asked the Northeast Jersey District to help implement and enlarge the plan.

The Soil Conservation Service assisted in planning an 11-acre lake with water-level control to provide a habitat and feeding area for waterfowl. Areas were planned to provide food, cover, and water for upland game birds and song birds and for the many mammals, including black bear, deer, squirrels, and chipmunks.

Trails to and from the wildlife areas are located to minimize erosion and maintenance. Fertilizer and lime are used with seeding mixtures—designed to give protective cover despite the shade and heavy traffic.

Foresters of the State Forestry Bureau are planning woodland management to complement the center's wildlife and nature study program. Firebreaks will be established throughout the entire tract.



Lester Alpaugh, resident forester of Sussex Woodlands, Inc., points out to owner, Fred Ferber, the insect activity taking place in a dead tree.

Also, small open spaces are planned in wooded areas to provide food, cover, and nesting sites for wildlife.

The Audubon Society's original plan called for the layout and design of buildings and operation of the center.

Mr. Ferber has many uses in mind for his area, including research facilities for colleges, outdoor laboratories for school groups, rehabilitation for the handicapped, and opportunities for people to spend pleasant hours observing nature.—ROBERT A. SIDNER, *Work Unit Conservationist, SCS, Morristown, N. J.* ♦

Bob Myers (right), a New York Soil Conservation Service biologist, explains the relationship of open field and woodland to wildlife habitat. Listening are (left to right) Thomas Crebbs, SCS biologist; Fred Ferber, owner; and Lester Alpaugh, resident forester.

Districts Subscribing to *Soil Conservation*

Michigan soil conservation districts are using many ways to increase circulation of *Soil Conservation* Magazine. Some districts provide subscriptions to schools, doctors, lawyers, dentists, and conservation camps. One district sent letters to 64 doctors, lawyers, and dentists telling them that because of their interest in soil and water conservation the district was donating the subscriptions. ♦

Scout Ranch Gives Boys Experience

A CONSERVATION plan on the Flaming Arrow Scout Ranch gives the boys a chance to learn while they work.

About 15 miles north of Bozeman, Mont., the 432-acre Scout Ranch is located high in the Bridger Mountains.

Soon after the application was made for a basic conservation plan, the Gallatin Valley Soil and Water Conservation District Supervisors gave it high priority, and SCS technicians assisted in planning the needed vegetative and water control practices.

The Scouts started working on the planned practices. They seeded grass on bare areas and cleared a portion of the area of dead trees. To prevent killing out the vegetation, each week they rotate campsites. They are developing and piping spring water to the troop camp areas.

Much of this work came about as a result of the supervision of Ernie Loy, who works for the Yellowstone Valley Council and is director of the Scout Ranch.

He believes that Boy Scouts should learn conservation by working with their hands and seeing with their eyes. When he wants to show boys how beavers can build a dam and hold up water in a creek, a troop goes out to a 27-acre wildlife area where they can see where beavers have been working.

The spirit and enthusiasm already generated in getting conservation on the land will make the Flaming Arrow Scout Ranch a showplace of conservation and natural beauty.—KENNETH HARMAN, *Work Unit Conservationist, SCS, Bozeman, Mont.* ♦

Flaming Arrow Scout Ranch offers Boy Scouts "on-the-ground-conservation" experience in a beautiful setting.

Urban Land Use Planning Policy

THE WASHINGTON State Soil and Water Conservation Committee has taken a positive position committing conservation districts of that State to concern themselves with land use problems in urban areas by adopting the following "Policy Statement on Land Use Planning:"

"Recognizing that America's rural population is decreasing while its urban population is increasing at a rapid rate,

"Recognizing that urban dwellers are recipients of the products of soil and water resources,

"Recognizing that many complex conservation problems relating to the residential, industrial, and other urban uses of land and water are emerging,

"Recognizing the needs of urban dwellers for land-water-based recreation are increasing rapidly,

"Therefore, in order to maintain a high degree of mutual understanding, support, and coordination of effort with urban people, we, the Washington State Soil and Water Conservation Committee and the 68 soil and water conservation districts organized under RCW 89.08 determine that:

"(1) We shall take the initiative in maintaining close working relations with rural and urban leaders, planning commissions, chambers of commerce, civic groups, and all agencies involved in resource conservation and development;

"(2) That district governing bodies enter into memorandums of understanding with appropriate agencies at all levels which are applicable;

"(3) That the functions, objectives, and services of districts be made known to nonfarm people through news media and other avenues of communication; and

"(4) That all assistance available through districts be made readily available to urban and suburban groups in solving conservation and resource-development problems;

"(5) That conservation districts provide technical data and soil interpretations to county and city planning and zoning boards."

The statement continues with the enumeration of 25 specific actions recommended to implement the foregoing policy. ♦

How Beautiful to Behold

Bales of crested wheatgrass hay dot Westcott's fields nestled at the foot of grim cliffs along the Little Dolores.

NESTLED in a little valley between towering sandstone cliffs, Jack Westcott's grass fields ripple before the gentle summer breeze. Beautiful to behold, but more important to Jack, they are a vital source of income from seed and cattle forage. They represent conservation farming in a rugged, semiarid section of the Southwest.

Soil Conservationist Loren Good examines seed in Jack Westcott's field of crested wheatgrass.

The Westcott ranch is some 30 miles west of Grand Junction in the Glade Park Soil Conservation District, Colorado. Jack, with his wife Joan, and their two small sons, Bill and Wayne, operate 952 acres, of which 286 acres are devoted to irrigated or partially irrigated forage crops and pasture.

They've been on the place only 2 years, but Jack learned quickly to make the best use of his limited supply of irrigation water. Grass fits into his scheme of producing beef, growing seed, and conserving both his land and water. He knows the beauty and value of good grass.

A year ago, he decided that 50 acres of crested wheatgrass should be more lush and vigorous. To remedy the situation, he applied 50 units of nitrogen and 40 units of phosphate an acre. With 2 irrigations, the field yielded 9 tons of clean seed or 360 pounds an acre. He cut the 50 acres of stubble and got more than 3,500 bales of grass hay containing 12.4 percent protein.

Westcott's grass provides more than a cash seed crop and cattle forage. It nails down his soil, helps to prevent sedimentation of the nearby Little Dolores River, and, not the least of all, creates a spot of real beauty in an area of otherwise rather drab but rugged country.

Someone once said that grass is God's forgiveness—it heals the ugly scars that man makes in this good earth. With man's help and care, grass can be even more bountiful and beautiful to behold.—DEARL B. BEACH, *Area Conservationist, and* W. S. PALMER, *Work Unit Conservationist, SCS, Grand Junction, Colo.* ♦

Trout Flourish in Maine Watershed Lake

Plenty of fat 12-inch "brookies," weighing more than a pound apiece, are the signs of a dream come true for Mr. and Mrs. Rommy Haines in the Libby Brook Small Watershed Project area at Fort Fairfield, Maine.

Several hundred specimens of one of Maine's favorite gamefish, stocked as 3-inch fingerlings in 1965, have been caught from the 20-acre lake impounded behind the multiple-purpose flood-retarding structure built on the Haines' potato and sugar beet farm.

Haines, a supervisor of the Central Aroostook County Soil and Water Conservation District, was one of the original supporters of the Libby Brook Project. The work was completed by cooperation among local people, State agencies, and the Soil Conservation Service.

One other dam, a diversion channel, a new recreation center at Monson Pond, and intensified conservation land treatment throughout the area are outstanding features of the project. Measures were installed to protect Fort Fairfield from flood damage and to provide better living conditions for the area's people.

The dam on the Haines' farm controls runoff on 90 percent of the watershed besides contributing first-rate angling sport. ♦

Range Youth Camp for Grass Judges

Rancher A. F. "Chink" Beaty (left) and SCS Range Conservationist Fred Whittington (right) help Beaty's cowhands with plant identification. Young cowhands (left to right) are Kent Hawkins, John McClellan, and Gary Goodwin from Roger Mills, Nowata, and Anadarko counties.

RANCHERS of the Upper Washita Soil and Water Conservation District were hosts for a week early last August to 32 FFA and 4-H Club boys attending the Sixth Annual Range Youth Camp at Cheyenne, Okla.

The boys were members of four FFA and four 4-H Club teams that had scored high in county range and pasture judging contests and in the international contest held in Oklahoma City in the spring.

At the camp, the boys were regrouped under ranch "bosses" and lived in the conservation district's field house on the Black Kettle National Grassland.

In addition to studying grasses and range sites, they spent one forenoon actually working as ranch hands for their hosts—helping to fix fences, riding horses to drive cattle, and the like.

Specialists from the Soil Conservation Service, Oklahoma State University, Fish and Wildlife Service, Forest Service, and local ranchers helped with the instruction. All were Oklahoma members of the Kansas-Oklahoma section of the American Society of Range Management, one of the sponsors of the camp.

After the final contest, and at a banquet provided by the town of Cheyenne, the teams were seated behind their sponsors' brands: The "77" of the C. W. "Speck" Lester ranch, Ray Cole's "H," Harlan Thomas' "IV," C. L. Hickey's "Lazy H over a Bar," A. F. Beaty's "Hat," Bob Green's "G-Bar," and B. L. Eakins' "JB." The JB team was the winner.

The teams attending the camp were from 4-H clubs in Nowata, Logan, Pawnee, and Roger Mills counties, and from FFA chapters at Anadarko, Tryon, Hammon, and Cheyenne.—ALVIN M. CLEMENTS AND FRED WHITTINGTON, *Assistant State Conservationist, SCS, Stillwater, and Range Conservationist, SCS, Elk City, Okla.* ♦

Gully Erosion in U.S.

Soil erosion became a serious problem in America soon after the beginning of modern agriculture. One type of erosion was gully formation. In 1939, there were more than 200 million active gullies in the United States, according to Dr. H. H. Bennett in his book "Soil Conservation," 1939. ♦

A Sand County Almanac. BY ALDO LEOPOLD. *1966. Enlarged edition. Oxford University Press, New York. 269 pp., illus. $6.50.*

This new edition makes a modern conservation classic available again after a period out of print.

With the contents slightly reorganized, and with the addition of selected essays from a later book (*Round River,* also out of print), this book provides a full summary of Leopold's conservation philosophy.

An active consultant of the Soil Conservation Service in its early days, Leopold helped shape its program and philosophy to recognize the inseparable relationship of all land resources.

A Sand County Almanac is perhaps the most eloquent statement in print of the concept of land as the total ecosystem and of the ethic of man's responsibility for its care.—B.O.

The Big Water Fight. BY THE LEAGUE OF WOMEN VOTERS EDUCATION FUND. *1966. Stephen Greene Press, Brattleboro, Vt. 246 pp., illus. $6.95.*

For more than 10 years the League of Women Voters has been a leader among the citizen groups working to find solutions to the complex problems of water-resource use and management.

In *The Big Water Fight* the experiences of League leaders and members throughout the country are summarized in case histories of community action programs, river basin studies, strip-mine control campaigns, and water developments.

Written with usual League forthrightness, the theme of citizen responsibility in water-resource development recurs throughout the book, and any organization or

individual might well use this as a handbook for action.

Of particular help to the average interested citizen is the analysis of the functions and interactions of various Federal, State, and local Government agencies, and the chapter on citizen participation in decision-making processes.

That the League members have made good use of Soil Conservation Service assistance and information is obvious. For anyone interested in present and future local action there are numerous guidelines and sources of help. The book is the most practical survey yet published of actual experiences of citizen groups in action.—KATHARINE MERGEN, *Information Division, SCS, Washington, D. C.*

Guidelines to Planning, Developing and Managing Rural Recreation Enterprises. EDITED BY GEORGE W. CORNWELL AND CARL J. HOLCOMB. *1966. Coop. Ext. Serv., Va. Polytechnic Inst., Blacksburg, Va. 424 pp., illus. $2.*

This publication is the proceedings of the Virginia Outdoor Recreation Symposium held at Virginia Polytechnic Institute, February 10-14, 1964. It should serve as an excellent reference source not only for prospective entrepreneurs but also for resource conservation personnel, financial advisers, and others who work with rural people on income-producing recreation enterprises.—RALPH C. WILSON, *Watershed Planning Division, SCS, Washington, D. C.*

New Publications

Physiographic History and the Soils, Entrenched Stream Systems, and Gullies, Harrison County, Iowa. BY RAYMOND B. DANIELS AND ROBERT H. JORDON. *1966. USDA Tech. Bul. 1348. 116 pp., illus.* This bulletin reports on a study made by the Soil Conservation Service in 1957-60 of the conditions in the Thompson Creek, Magnolia, and Willow River watersheds. It consists of three papers:

The first paper, "Stratigraphy and Geomorphology," discusses the Pleistocene and Recent deposits and the geomorphic surfaces that include the Sangamon, Wisconsin, and Recent surfaces and describes the recent physiographic history of the watersheds.

"Soils," the second paper, covers the soils in Tazewell loess—Monona, Ida, and Dow series—and gives the morphology, distribution, and physical and chemical properties of these soils.

The third paper, "Stream Trenching and Valley-Slope Gullies," gives the findings of the study made of the Thompson Creek watershed to determine the causes and effects of stream trenching and gullying in western Iowa. It also investigated two other watersheds to see if the data are applicable to larger areas.

Effects of Agricultural Conservation Practices on the Hydrology of Corey Creek Basin, Pennsylvania, 1954-60. BY BENJAMIN L. JONES. *1966. U. S. Dept. Int. Geol. Surv. Water-Supply Paper 1532–C. 55 pp., illus. $0.25.* In 1953, the Corey Creek basin was selected by SCS for extensive conservation treatment under Public Law 566. The conservation plan provided for collection and evaluation of hydrologic data by USGS.

During the period 1954-60, there was no significant change in precipitation, total runoff, or direct runoff in either basin. The rate of suspended-sediment discharge decreased in both basins, but the decrease has been greater in the Corey Creek basin.

The application of conservation practices has been an important factor in decreasing the suspended-sediment discharge from the two basins; the most important change probably has been the shift from cropland to grassland.

Natural Resources of Alaska. *1966. U. S. Dept. of Interior. 76 pp., illus. $0.65.* The 15th in the Department of the Interior's series of booklets on the resources of the States follows the pattern of earlier issues.

The description of "The Great Land," its history, people, and resources, is told with an eye to the spectacular and unusual, yet with realism regarding opportunities for settlement and agriculture.

It is pointed out that only 4 percent of homesteads attempted are being used for farming and only about 33 percent of the people who applied for homesteads were able to fulfill the requirements and get title to the land.

The programs of Federal natural resource agencies are briefly described. Included, in addition to the bureaus of the Department of the Interior, are the Alaska Railroad, the U. S. Army Corps of Engineers, the Forest Service, and the Soil Conservation Service.

Aggregate Economic Effects of Alternative Land Retirement Programs. BY NORMAN K. WHITTLESEY AND EARL O. HEADY. *1966. USDA Tech. Bul. 1351. 54 pp., illus.* Information on hypothetical land retirement programs which might aid in controlling agricultural production and in maintaining adequate incomes for farmers of the wheat-feed grain-oilmeal-cotton economy.

Evaporation Study in a Humid Region, Lake Michie, North Carolina. BY J. F. TURNER, JR. *1966. U.S. Geol. Surv. Prof. Paper 272–G. 18 pp., illus.* Evaluation of the mass-transfer and water-budget techniques of calibrating a reservoir for evaporation.

A Rapid Method of Construction Control for Embankments of Cohesive Soil. BY JACK W. HILF. *1966. U. S. Dept. Int. Engr. Monog. 26. 99 pp., illus. $1.* A method of evaluating the compaction of cohesive soils used in construction of earth embankments.

Ground-Water Movement. BY R. E. GLOVER. *1966. U. S. Dept. Int. Engr. Monog. 31. 76 pp., illus. $0.50.* Describes and elaborates on formulas that apply to certain important cases of ground-water movement.

Effect of Snow Compaction on Runoff From Rain on Snow. BY FREDERICK A. BERTLE. *1966. U. S. Dept. Int. Engr. Monog. 35. 45 pp., illus. $0.40.* Reports on the determination of the effect of rainfall on both the depth and water content of fresh snow.

Regional Trends in Water-Well Drilling in the United States. BY GERALD MEYER AND G. G. WYRICK. *1966. U. S. Dept. Int. Geol. Surv. Circ. 533. 8 pp., illus.* Analysis of estimates of the number of water wells drilled in the U. S. during 1960-64.

Students . . . Start Your Career in SCS Before You Graduate. *1966 Rev. USDA Misc. Pub. 714. 4-page folder, illus.* Reasons for becoming a student trainee in the Soil Conservation Service.

Aquatic Weed Control Studies. BY N. E. OTTO AND T. R. BARTLEY, *1966. U. S. Dept. Interior Res. Rpt. 2. 40 pp., illus. $0.35.*

Soil Surveys

Seminole County, Florida. BY ALBERT L. FURMAN AND HORACE O. WHITE. *1966. 83 pp., illus.; maps 3.17 inches to the mile (1: 20,000).*

From the Administrator:

Increased Production and Conservation

CHANGING TRENDS in crop production in the United States pose questions for landowners who have grassland that could be cultivated.

In recent months national agricultural policy has placed less effort on reducing farm output by retiring land from cultivation and given more emphasis to encouraging increased production of certain crops.

Increasing requirements for food to meet domestic needs, supply foreign markets, and provide aid to underdeveloped nations have reduced stocks of surplus crops to the point that there must be concern with assuring adequate supplies in the future.

The combination of higher prices and easing of acreage controls will encourage many farmers to devote more land to the favored crops. Each according to his own circumstances, individual operators will have the choice of shifting from one clean-tilled crop to another, plowing up cultivated grasses or legumes, returning recently retired land to cultivation, bringing new land into cultivation, or increasing yields on land being cultivated.

Such land use shifts will have important effects on both individual and public interests.

The individual farmer or rancher naturally will be guided largely by his evaluation of the economic prospects of the various alternatives open to him. This places a heavy responsibility on soil conservationists and others providing information as a basis for his decisions.

SCS fieldmen can help by making available cost-return information about different crops—including livestock, timber, or recreation where applicable—for different soils; by pointing out the opportunity for increased production on suitable soils; by making clear the erosion and soil deterioration hazards of intensive land use on some soils; and by explaining the conservation treatments needed if the land is used for cultivated crops.

In the public interest, care must be taken to protect the progress that has been made in converting unsuitable cropland to conservation uses. A recent sampling indicated that about one-fourth of the 60 million acres now in the Conservation Reserve and other cropland conversion programs is *not suited* for sustained cultivation and should not be used for wheat or row crops.

To encourage the plowup of land that is marginal for crop production could invite land deterioration and human suffering such as awakened the Nation to the need for conservation in the first place a generation ago. Such an expedient is not necessary, for we have plenty of land that is suitable for cultivation. Increasing the output of needed crops on suitable soil will serve the purposes of conservation as well as meet production goals.

Local soil conservation districts and the conservationists assisting them need to make sure that such hazardous areas are clearly identified and that operators are guided to concentrate crop production on land capable of continued cultivation.

Land use adjustments need to be made to meet the changing needs for farm products, of course. It is equally important that they be made with full consideration for conservation of soil and water resources.

D. A. WILLIAMS

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America The Beautiful

America The Beautiful—Colorado SHEEP ON IRRIGATED PASTURE
SHAVANO SOIL CONSERVATION DISTRICT

The "America The Beautiful" photo exhibit—one picture for each State, Puerto Rico, and the Virgin Islands—has been reproduced in full-color lithographs suitable for framing. Prints are available from the Superintendent of Documents for 10 cents each or $5.00 for the complete set. Order blanks can be obtained from local Soil Conservation Service offices and at most post offices.